

Date: Thursday, 10/07/2008 12:44:08 PM
 User: Julie Lecocq

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : 350/355 AS X-TUBE AFT UNDER REVIEW <i>R</i>
Job Number : 40411	
Estimate Number : 12486	
P.O. Number :	Part Number : D350748201
This Issue : 10/07/2008 S.O. No. :	Drawing Number : N/A
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : CROSSTUBES	Drawing Revision : D
Previous Run : 38497	Material :
Written By :	Due Date : 31/08/2008 Qty: 1 Um: Each
Checked & Approved By : <i>JLD 08.7.08</i>	
Comment : Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update qty of MS21042L5 06-09-12 KJ Est Rev C Combined manufacturing 08.04.02 EC verified by: DD Est Rev:D 08-06-24 revD as per dwg DD verified by:EC	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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*JLD 08.8.13*

Comment: Photocopy bluefile & type labels per PPPD350-748-201	CHG001
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2.0	D350748241TRN	Crosstube Turning Detail
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Comment: Qty: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
CROSSTUBE TURNING DETAIL
batch <i>B38001</i>

DP 8-7-10

3.0	BENDING	BENDING MACHINE - SKIDTUBES
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**Comment:** BENDING MACHINE

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

DP 8-7-10

4.0	QC15	DIMENSIONAL CHECK OF X-TUBES
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**Comment:** DIMENSIONAL CHECK OF X-TUBES*08-07-11*

5.0	CROSSTUBES	CROSSTUBES RESOURCE 1
-----	------------	-----------------------

**Comment:** LANDING GEAR RESOURCE 1

1-Remove all marks from tube within limits of D350-748-241

2-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs

Set-up drill table as per QSI 010

- AUM 8-7-14
FT 08-07-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

3-Debur

KT 08-07-14

4-Engrave Part # and Batch # as per Dwg D350-748-241

KT 08-07-14

6.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

S 08/07/15 (XL)

7.0

OUTSIDE SERV.10

OUTSIDE SERVICES -skids



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 6787

CL08107116 (1)

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

AS 08/08/11 (XL)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/08/11 (XL)

10.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Paint Outside of Tube as per Dart QSI 005 4.2

KT 08-08-15

11.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

M 08 08 21

Dart Aerospace Ltd

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Job Number:



Seq. #:

Machine Or Operation:

Description:

12.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total: 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: 37667

ml 08 08 21

13.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Insert

Batch: 100489

ml 08 08 21

14.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Washer

Batch: 108558

ml 08 08 21

15.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: 106484

ml 08 08 21

16.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Screw

Batch: 108986

ml 08 08 21

17.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

ml 08 08 21 (1)

Supports D3502-1 B35783 ml 08 08 21

Dart Aerospace Ltd

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Job Number: 40411

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

SS 08/08/21 @

19.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

20.0

D35001

Saddle



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

350 SADDLE

Batch: B35781

SS 08/08/22 @

21.0

D35021

Support



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch:

change to 12 w

22.0

D35011

Bushing



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

BUSHING

Batch: B35316

SS 08/08/22 @

23.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: 107534

SS 08/08/22 x

24.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: 1076302

SS 08/08/22 @

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Job Number: 40411

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: 107013

SS 08/08/22 (x)

26.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: 108161

SS 08/08/22 (x)

27.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: 108246

SS 08/08/22 (x)

28.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: 107499

SS 08/08/22 (x)

29.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M108471

SS 08/08/22

SS 08/08/22

(1x)

30.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

SS 08/08/22

31.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-201

Location:

PPP Rev:

Rev A

SS 08/08/22 (x)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 40411

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

QC21

FINAL INSPECTION/W/O RELEASE



08/08/25 *[Signature]*

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF 08-08-22

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

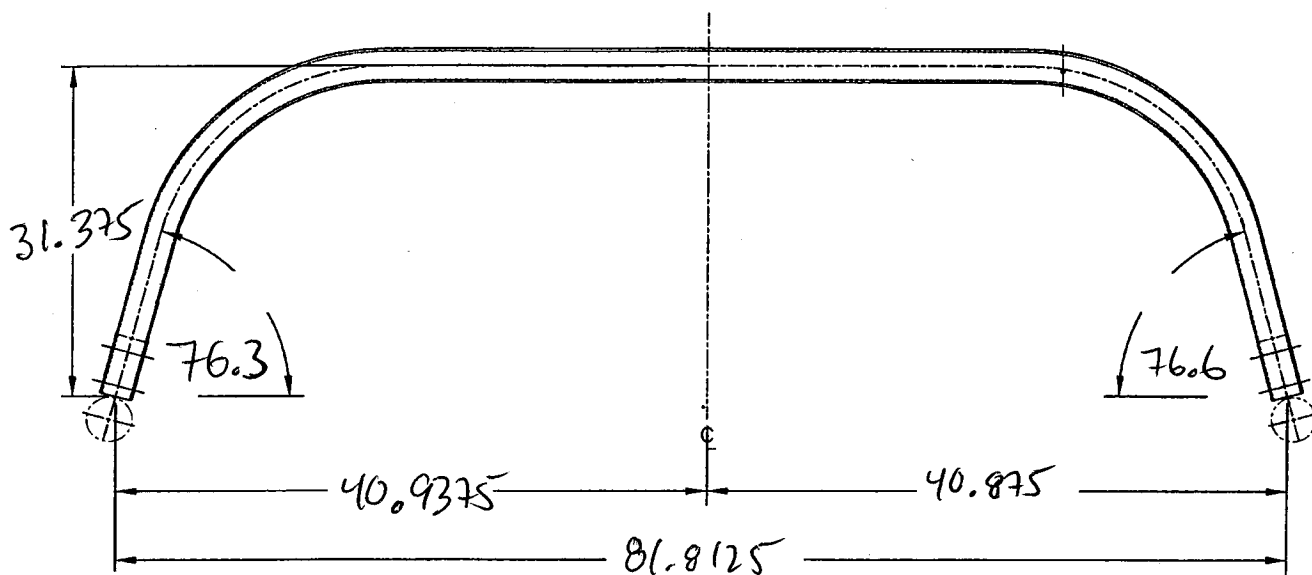
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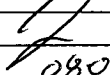
NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 40411	
Description: Crosstube High Aft (AS350/355)		Part Number: D350-748-201	
Inspection Dwg: D350-748-241 Rev: D			Page 1 of 1



Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments

QC15 Inspection	
Date	

0807-11

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM 	

W/O:		WORK ORDER CHANGES					
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DART**RELEASED**

06.10.31

DESIGN 9P	DRAWN BY 9P	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D350-748-241	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

UNDER REVIEW

07.02/16

CUTT JENK REDUCED

OK 07.11.22

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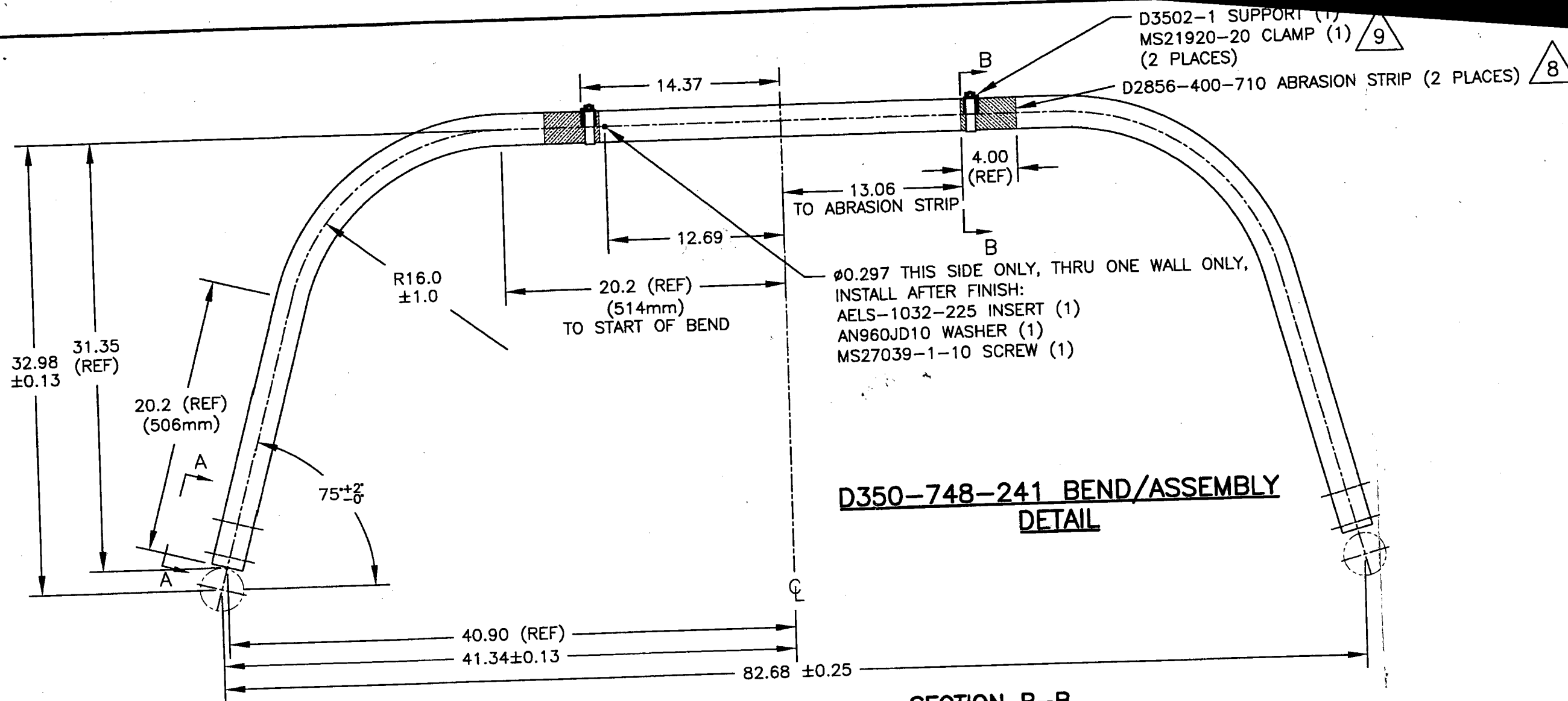
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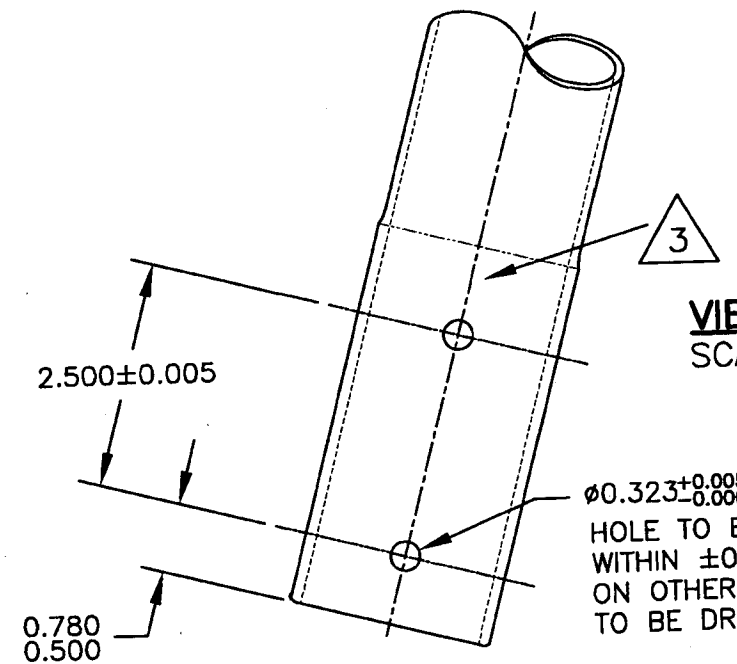
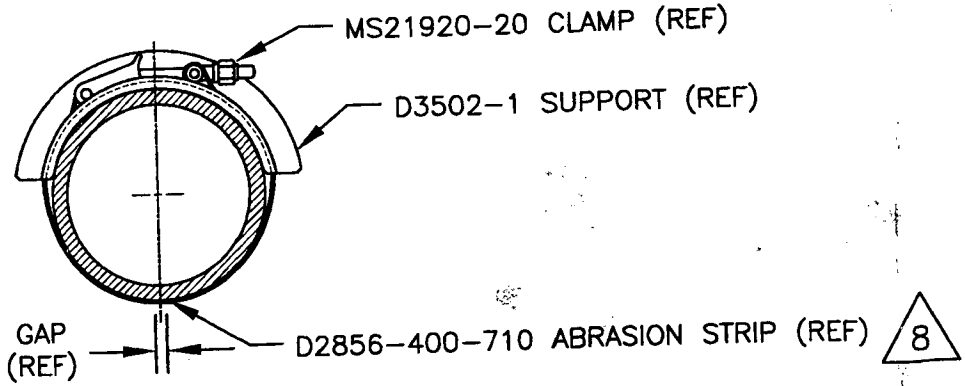
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NOTE: Date & initial all entries



**D350-748-241 BEND/ASSEMBLY
DETAIL**

**SECTION B-B
SCALE 1:2**



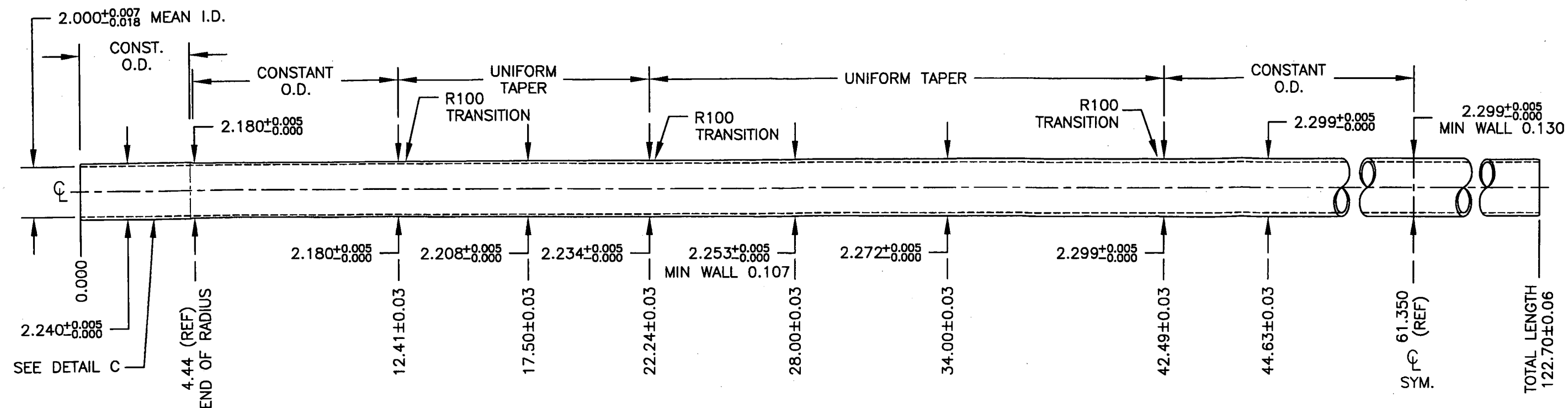
**VIEW A-A
SCALE 1:2**

Ø0.323^{+0.005}/_{-0.000} (THRU, TYP)
HOLE TO BE ALIGNED
WITHIN ±0.001 OF HOLE
ON OTHER SIDE OF CUFF,
TO BE DRILLED AFTER BENDING

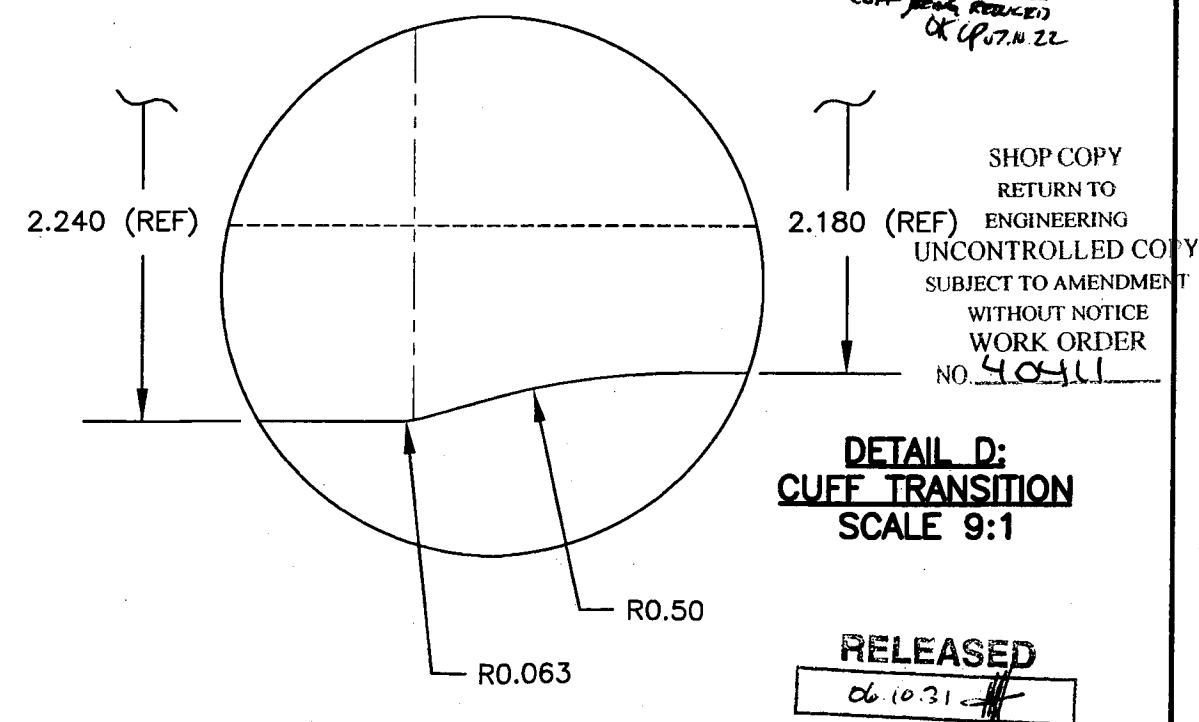
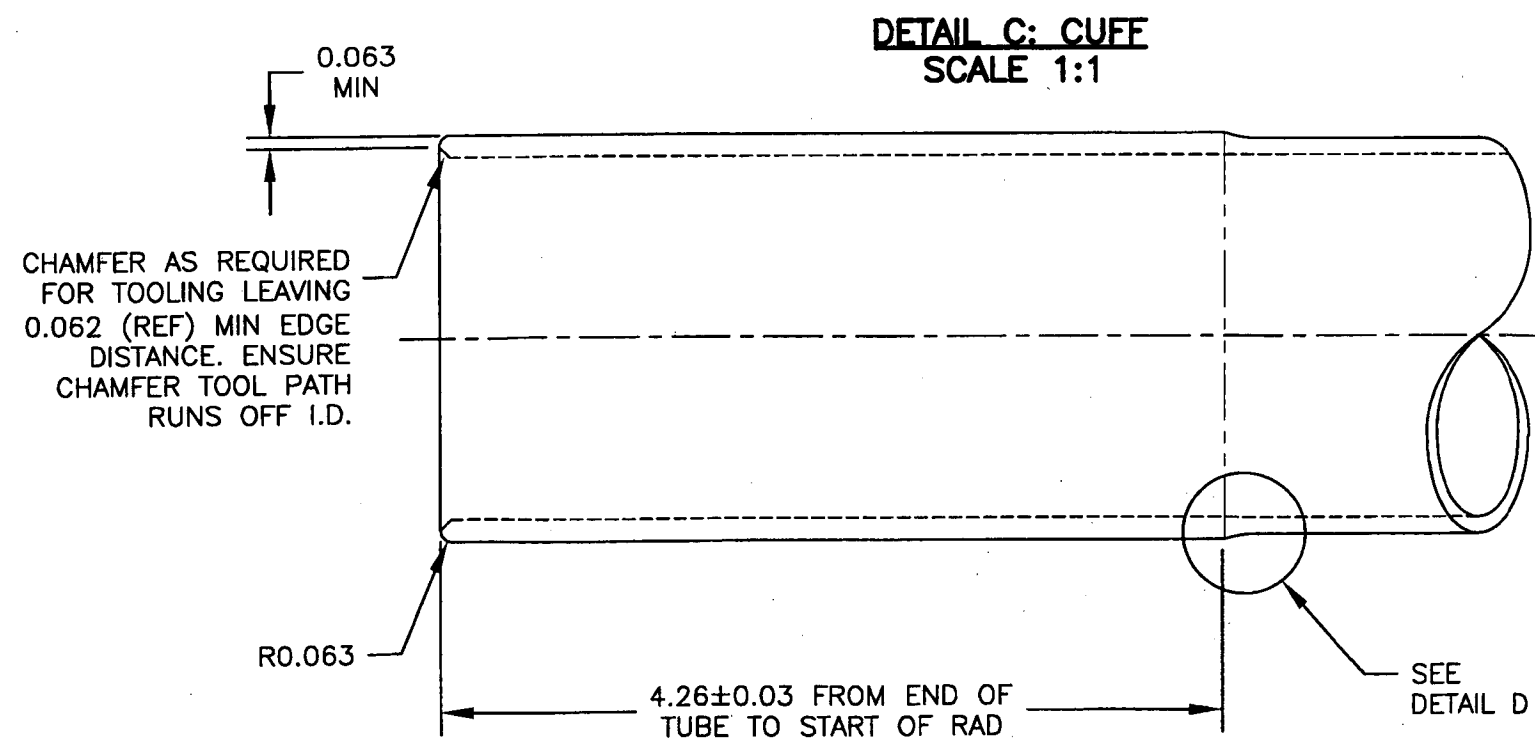
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 40411

UNDER REVIEW
07.02/16/11
CUFF JENK REDUCE
OK 07.11.22
RELEASED
06.10.31

COPYRIGHT © 2006 BY DART AEROSPACE LTD.		DESIGN	q	DRAWN BY	q	DART	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
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		DATE	06.10.31			D350-748-241	SHEET 2 OF 3
						TITLE	SCALE
						CROSSTUBE (AS 350/355 HI AFT)	1:8



D350-748-241 MACHINING DETAIL



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DATE		06.10.31		DRAWING NO.	REV. D
				D350-748-241	SHEET 3 OF 3
				TITLE	SCALE
				CROSSTUBE (AS 350/355 HI AFT)	1:4

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Jul-31-2008

**CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St.
Hawksbury, ON K6A 1K7**

**W/O #: 78313
INVOICE #: 40443**

**CONTRACT OR
PURCHASE ORDER # P00006784**

DESCRIPTION: SKID

QTY 1

P/N # D350-748-201

S/N # B4041/

**CADMIUM PLATE IAW AMS-QQ-P-416B TYPE 2 CLASS 1. HEAT
CHART #9418 & #9461.**

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order**

Approved Inspector:

William Maruszynski

